

**WE CLAIM:**

1. A head stack assembly (HSA) for use in a disk drive comprising a disk, wherein a merge tool is used to merge the HSA with the disk during manufacturing of the disk drive, the HSA comprising:
  - (a) at least one actuator arm;
  - (b) a suspension connected to a distal end of the actuator arm;
  - (c) a head connected to a distal end of the suspension, wherein the suspension for biasing the head toward the disk; and
  - (d) a multi-level shipping comb attached to the actuator arm, the multi-level shipping comb comprising at least one finger for maintaining the suspension in a near optimal vertical position, wherein:
    - the finger comprises a first surface and a second surface, wherein the second surface is raised relative to the first surface;
    - during shipping of the HSA, the first surface of the finger contacts the suspension to protect against overstressing the suspension; and
    - during manufacture of the disk drive, the shipping comb is actuated so that the second surface contacts the suspension thereby bending the suspension in a vertical direction to facilitate the insertion of the merge tool.
2. The HSA as recited in claim 1, wherein:
  - (a) the actuator arm comprises an aperture; and
  - (b) the shipping comb comprises a pin and a latching member, wherein the shipping comb is attached to the actuator arm by:
    - inserting the pin through the aperture of the actuator arm; and
    - rotating the shipping comb in a first direction until the latching member latches onto the side of the actuator arm and the first surface of the finger contacts the suspension.

- 1     3.     The HSA as recited in claim 2, wherein the shipping comb is actuated by rotating the  
2           shipping comb so that the second surface contacts the suspension thereby bending the  
3           suspension in a vertical direction to facilitate the insertion of the merge tool.
- 1     4.     The HSA as recited in claim 3, wherein the shipping comb is actuated by rotating the  
2           shipping comb in the first direction.
- 1     5.     The HSA as recited in claim 3, wherein the shipping comb is actuated by rotating the  
2           shipping comb in a second direction opposite the first direction.
- 1     6.     The HSA as recited in claim 1, wherein:  
2           (a) the second surface comprises a beveled surface with respect to the first surface; and  
3           (b) the suspension slides over the beveled surface when the shipping comb is actuated.
- 1     7.     The HSA as recited in claim 2, wherein after the merge tool is inserted, the shipping  
2           comb is detached from the actuator arm by rotating the shipping comb in a second  
3           direction opposite the first direction.
- 1     8.     The HSA as recited in claim 1, wherein after the merge tool is inserted, the shipping  
2           comb is detached from the actuator arm causing the suspension to retract vertically and  
3           engage the merge tool.
- 1     9.     The HSA as recited in claim 1, wherein the suspension comprises a coating for contacting  
2           the first and second surfaces of the finger to reduce friction between the finger and the  
3           suspension.
- 1     10.    The HSA as recited in claim 1, wherein:  
2           (a) the finger of the shipping comb comprises an arcuate shape such that the first and  
3           second surfaces comprise an arcuate shape; and  
4           (b) the second surface comprises a radius larger than a radius of the first surface.

- 1 11. A method of manufacturing a disk drive comprising a base casting, a disk, and a head  
2 stack assembly (HSA), the HSA comprising at least one actuator arm, a suspension  
3 connected to a distal end of the actuator arm, a head connected to a distal end of the  
4 suspension, wherein the suspension for biasing the head toward the disk, and a shipping  
5 comb attached to the actuator arm for maintaining the suspension in a near optimal  
6 vertical position, the method comprising the steps of:
- 7 (a) inserting the HSA into the base casting;
- 8 (b) actuating the shipping comb to bend the suspension in a vertical direction to facilitate  
9 the insertion of a merge tool comprising a finger for engaging the suspension;
- 10 (c) inserting the merge tool such that the finger of the merge tool moves into position  
11 without scraping against the suspension;
- 12 (d) detaching the shipping comb from the actuator arm wherein the suspension retracts  
13 vertically and engages the finger of the merge tool; and
- 14 (e) actuating the merge tool to merge the HSA with the disk.
- 1 12. The method as recited in claim 11, wherein the shipping comb is actuated by rotating the  
2 shipping comb to bend the suspension in a vertical direction to facilitate the insertion of  
3 the merge tool.
- 1 13. The method as recited in claim 11, wherein:
- 2 (a) the shipping comb comprises a beveled surface; and
- 3 (b) the suspension slides over the beveled surface when the shipping comb is actuated.
- 1 14. The method as recited in claim 11, wherein the shipping comb is detached from the  
2 actuator arm by rotating the shipping comb.
- 1 15. The method as recited in claim 11, wherein the suspension comprises a coating for  
2 reducing friction between the shipping comb and the suspension.